

Explosion Proof Junction Box for Incremental Encoders

- Fiber Optic Transmission up to 2000 meters
- No Degradation of Encoder Signal from Electrical Disturbances
- Safely brings Encoder Signals out of Hazardous Areas
- High Encoder Frequency and Low Transmission Delay
- Ex-Certified Box

Electrical Specifications - Transmitter

Supply Voltage:	4.75V to 30V
Current Consumption (typical)	240 mA @ $V_{sup} = 5V$ (excl. encoder) 160 mA @ $V_{sup} = 15V$ (excl. encoder) 100 mA @ $V_{sup} = 30V$ (excl. encoder)
Encoder Inputs	Differential inputs $V_{diff} \geq 0,3 \times$ Supply voltage Maximum input voltage equal to Supply Voltage
Encoder Frequency	Max. 100 kHz
Encoder Supply Voltage	Identical to Transmitter Supply voltage

Electrical Specifications - Receiver

Supply Voltage:	4.75V to 30V
Current Consumption (typical)	180 mA @ $V_{sup} = 5V$ 70 mA @ $V_{sup} = 15V$ 45 mA @ $V_{sup} = 30V$
Encoder Outputs	Differential Outputs $V_{high} \geq V_{sup} - 1.2V$ @ $I_{out} = -25mA$ $V_{high} \leq 0.8V$ @ $I_{out} = 25mA$

Common Specification

Update Rate	1.04 million update / second ~ 0.96 μ sec. / update
Transmission Delay	$\leq 3\mu$ sec. Approx. 1 μ sec. must be added per 200 Meters of fiber optic cable
Optical Fiber Connectors	Standard ST Insertion loss ≤ 0.7 dB (≤ 0.4 dB recommended)
Recommended Optical Fiber	62.5 / 125 μ m. Multimode
Optical Wavelength	850 nm
Transmission Distance	1,000 meters 2,000 meters (option)

Mechanical Specifications

Material	Box and Lid: Aluminum AlSi12Cu1(Fe) acc. to EN AC 47100 All Fasteners Class A2-70, ISO 4762 Stainless Steel, Yield Stress 450 MPa
Weight:	Approx. 1300 gr. (45.8 oz) without cable glands and blinds

Environmental Specifications

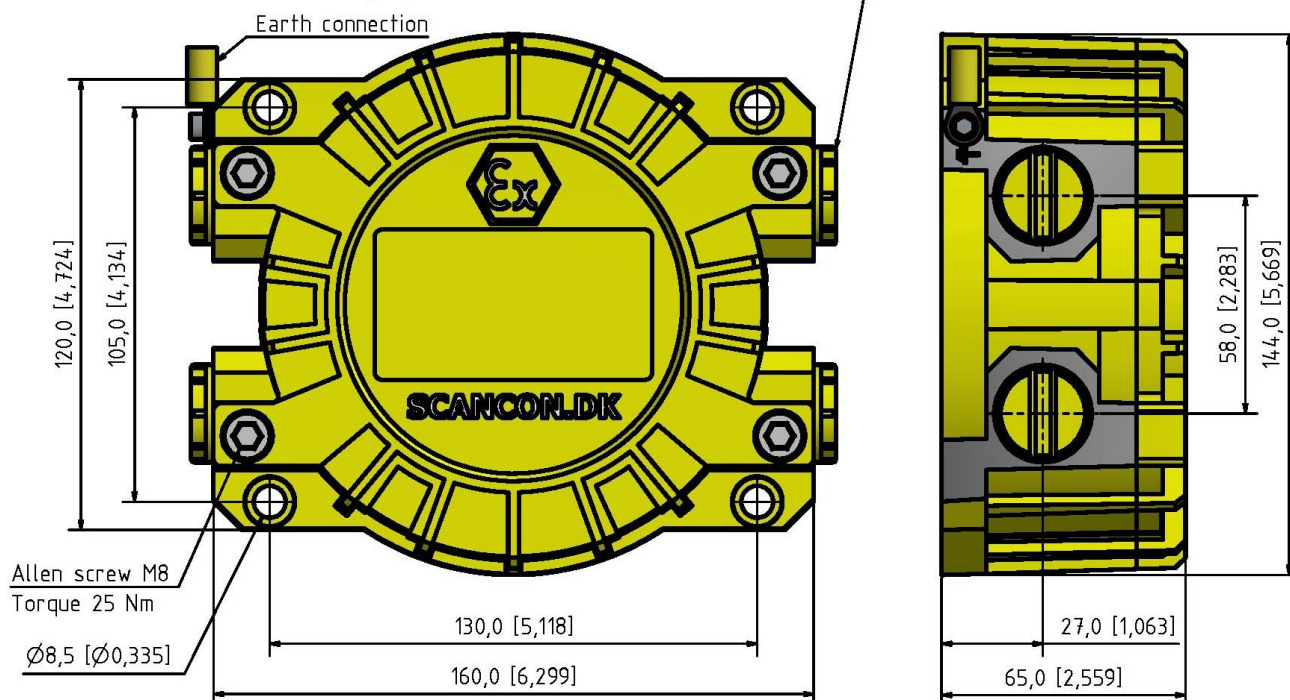
Operating Temperature:	-20° to +70° C
Storage Temperature:	-40° to +85° C
Humidity	98% RH without condensation
Shock:	100 G / 11 ms
Vibration:	10G / (10-2000 Hz)
Bump:	10 G - 16 ms (1000 x 3 axis)
Enclosure Rating:	IP 67
Electromagnetic Compatibility (EMC)	EN 61000-6-2 : 2005 (industrial environments) EN 61000-6-3 : 2007 (residential commercial, and light-industrial environments)
Certifications	<i>Certifications apply to the Junction box only. Cable glands and blinds are not covered by these certifications.</i>

Certifications

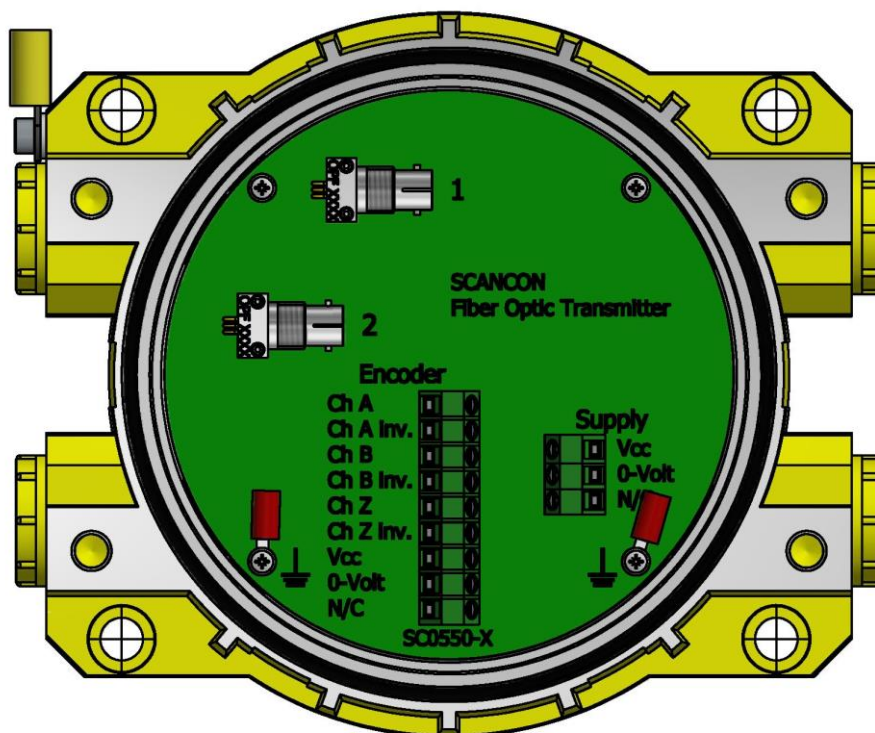
ATEX:	Certificate No.: ITS09ATEX16831X II 2 G Ex db IIC T6 Gb and II 2 D Ex tb IIIC T85°C Db, Tamb -20°C to +70°C
EAC Ex: (pending)	Certificate No.: "НАННО ЦСВЭ" TC RU C-DK.AA87.B...../19 1 Ex d IIC T6 Gb X Ex tb IIIC T85°C Db x -20°C<T.amb<+70°C

Mechanical Dimensions

Plastic Screw Plugs are only for protection during shipping!
They must be replaced by suitably certified Cable Glands
and /or Blind Plugs prior use.



Transmitter Connection



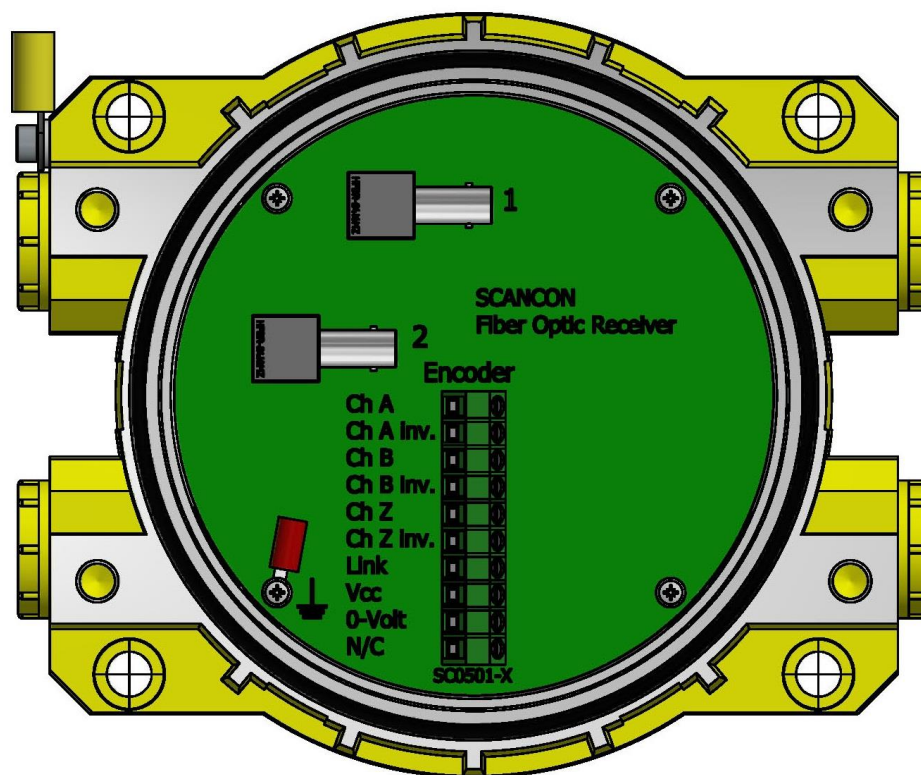
Supply

Terminal	Name	Type	Connect to
1	Vcc	Supply input	Positive supply for Transmitter
2	0-Volt	Supply input	0V (GND) for Transmitter
3	N/C	N/C	Not Connected

Encoder Input

Terminal	Name	Type	Connect to
1	Ch A	Input	Channel A from Encoder
2	Ch A Inv.	Input	Channel A inverted from Encoder
3	Ch B	Input	Channel B from Encoder
4	Ch B Inv.	Input	Channel B inverted from Encoder
5	Ch Z	Input	Channel Z from Encoder
6	Ch Z Inv.	Input	Channel Z inverted from Encoder
7	Vcc	Supply output	Positive supply for Encoder
8	0-Volt	Supply output	0V (GND) for Encoder
9	N/C	N/C	Not Connected

Receiver Connection



Encoder Output

Terminal	Name	Type	Connect to
1	Ch A	Output	Channel A to Counter/Controller
2	Ch A Inv.	Output	Channel A inverted to Counter/Controller
3	Ch B	Output	Channel B to Counter/Controller
4	Ch B Inv.	Output	Channel B inverted to Counter/Controller
5	Ch Z	Output	Channel Z to Counter/Controller
6	Ch Z Inv.	Output	Channel Z inverted to Counter/Controller
7	Link	Output	High for data valid – low for error
8	Vcc	Supply output	Positive supply for Receiver
9	0-Volt	Supply output	0V (GND) for Receiver
10	N/C	N/C	Not Connected

Internal earth connection (red cable shoe(s)): 22-16 AWG

External earth connection (yellow cable shoe): 12-10 AWG

Terminal blocks: 26-16 AWG

Ordering Code

Example: EXJB – AL – TX – INC – BL – 12B – CC – CC

EXJB - AL - - INC - - - -

1 2 3 4 5 6 7

1. Composition

AluminumAL

3. Encoder

Incremental.....INC

4 – 7. Cable gland / blind plug M20x1,5:

Scancon's*:
 Blind Plug.....BL
 Cable dia. Ø6,3-Ø7,5.....07A
 Cable dia. Ø8,3-Ø9,4.....09A
 Cable dia. Ø9,7-Ø10,8.....10A
 Cable dia. Ø10,8-Ø12,3.....12A
 Cable dia. Ø6,3-Ø7,5.....07B
 Cable dia. Ø8,3-Ø9,4.....09B
 Cable dia. Ø9,7-Ø10,8.....10B
 Cable dia. Ø10,8-Ø12,3.....12B
 Commercial**.....CC

2. Type

TransmitterTX
 ReceiverRX

*) *These Ex Cable glands and Blind Plugs are manufactured by Scancon. To see details – go to [Products](#) at home page.*

**) *No cable glands/ blind plugs delivered.*

When fibre optic cable is used, glands must be suitably certified for use with the type of cable so as to maintain the type of protection (Ex db/Ex tb).

Example of EXJB configuration:

Plastic Screw Plugs are only for protection during shipping!
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